In this short notice we have been able to indicate only a few of the more interesting topics dealt with in Prof. Woeikof's treatise. The effects of the agent to which he has directed attention are undeniable and far-reaching, and the publication of his investigations should have the result of making the registration of the depth and duration of snow a part of the regular work of meteorological observatories. Other observations of a more detailed character, which he specifies in the course of his work, are also much needed.

H. F. B.

THE "CIRCOLO MATEMATICO" OF PALERMO.

Rendiconti del Circolo Matematico di Palermo. (Palermo: Sede del Societa, 1887–89.)

THE "Circolo Matematico" is one of the junior members of the now large family of Mathematical Societies. We have before us Tomo I., which gives an account of the proceedings from March 1884 to July 1887. Tomo II. contains like matter for 1888, and of the current volume we have three parts, each of which contains an account of the proceedings for a period of two months, terminating with June last. The first general meeting of which there is any record was held on March 20, 1884, and in that year eleven meetings are recorded, and the proceedings published within the narrow limits of thirteen pages: it was then the day of small things, and we presume the gatherings were confined almost to conversational expositions of mathematical problems. With increase of days came increase of strength, and the first volume contains seventy communications from twenty-one authors; of these the only foreign contributors are Messrs. E. Catalan, F. Cavallaro, Hirst, and Schoute. Dr. Hirst's short note is "Sur la congruence Roccella, du troisième ordre et de la troisième classe," and in it he points out that Dr. Roccella's congruence is a particular case of the Cremonian congruences discussed by him in his memoir "On Congruences of the third order and class" (L. Math. Soc. Proc., vol. xvi., 1885). These congruences are also the subjects of papers read by Signor Guccia. Amongst the longer papers in this volume are: "Intorno ad alcune formole nella teorica delle funzione Ellittiche," by Signor Albeggiani; "Sulle superficie dell' n^{mo} ordine immerse nello spazio di n dimensioni," by P. del Pezzo; "Sopra un metodo per formare le equazioni a derivate parziali, delle superficie che ammettono una generatrice di forma costante," by M. Gebbia; "Sopra alcuni sistemi lineari di curve piane algebriche di genere *due*," by V. Martinetti.

In the second volume there are thirty-nine papers by twenty-six authors. The only long papers are: "Intorno alle curve razionali d'ordine n dello spazio a $n - 1$ dimensioni," by G. Loria; "Sul carattere aritmetico dei coefficienti delle serie che soddisfano ad equazioni lineari differenziali o alle differenze," by S. Pincherle; "Sur la marche du cavalier," by C. Jordan. These papers are of no great length; the remaining communications rarely exceed four or five pages.

The May–June number of this year contains a "Solution du problème de Malfatti," by M. Lebon, and an "Étude d'un déplacement particulier d'une figure de forme invariable par des procédés élémentaires et purement géométriques," by M. Mannheim. In selecting papers we have had regard mainly to those which may be called memoirs; the smaller notes treat of similar matters, so that it is readily seen that the field at present occupied by the "Circle" is that of pure mathematics.

The names of the majority of the contributors are well known by their writings in other journals, and their work here is in all cases interesting, and of a high class. A peculiar feature of these volumes which strikes us is the amount of space devoted to the "Biblioteca matematica." In Vol. II., 236 pages are given up to the usual matter of a Society's Proceedings, and 83 pages to the titles of papers, &c., presented to the Society by individuals, or contained in the journals for which the *Circolo* exchanges its Proceedings. This is a useful piece of work, as the circle of exchanges is a large one. We wish the junior member every success.

OUR BOOK SHELF.

Names and Synonyms of British Plants. By G. Egerton-Warburton, B.A. Pp. 160. (London: G. Bell and Son, 1889.)

This little book is a synonymic catalogue of the British flowering plants and vascular Cryptogamia, in which are given the names under which the species stand in the last edition of the four standard hand-books, Sowerby's "English Botany," Hooker's "Student's Flora," Bentham's "Flora," Babington's "Manual," and in the London Catalogue. In a considerable number of cases the five differ more or less in the names which they adopt. This arises partly from the five authors taking a different view of specific limits. About two hundred of what Sir J. D. Hooker and Dr. Boswell call sub-species are usually regarded as species by Babington and as varieties by Bentham. The whole series of genera has lately been revised and redescribed by Mr. Bentham and Sir J. D. Hooker, and many which have been proposed by other authors are now placed as sub-genera or sunk altogether. In the preparation of the great Darwin catalogue of plants, under the editorship of Mr. B. Daydon Jackson, the priority of names has been more systematically investigated than has ever been previously attempted, and this has led to a great many changes. These are embodied in the last edition of the widely-used London Catalogue; but as the new or revised names stand there without any explanation, those who wish to use the list are often greatly puzzled, and it was a good idea of Mr. Warburton to prepare the present synonymic catalogue. It appears to have been drawn up very carefully, and gives a reference to the page or number indicating where in each of the five books every species will be found, and in an appendix there is a list of synonyms used by older British or Continental authorities. There is also a full list of the original authorities for the specific names, with the titles and dates of the books and papers in which the plants were originally described. The author omits to enumerate in his list two very useful books, the "Conspectus" of Nyman, and "Salictum Woburnense" of Forbes. He has failed, and no wonder, to run down some of the London Catalogue names of Rubi (*e.g.* *echinatus* and *longithyrsiger*), that refer to long-known plants, fully described in Babington's "Manual and Synopsis."

J. G. B.

Geology in Systematic Notes and Tables for the Use of Teachers and of Taught. By W. F. Gwinnell, F.G.S., F.R.Met.Soc., &c. (London: Allman and Son, 1889.)

While we cannot but regard the chief educational value of summary statements of the bare facts of a science, like those contained in the work before us, as consisting

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in the influence they exercise on the thought and memory of him who compiles them, yet it is impossible to ignore the fact that, in these days of many examinations, there is a persistent demand for works of the class. It is well, therefore, that books of the kind should be prepared with reasonable intelligence, and with such care against the propagation of glaring and misleading errors as the author of this work has certainly shown. It would undoubtedly be better that the *teachers* should prepare their own lecture-notes, with illustrations derived from personal reading and study; and no less desirable is it that the *taught* should make such notes of the facts referred to in illustration of the lessons given them, as to be able to recall to their minds the arguments of the teacher, and the principles which he has aimed at enforcing. For teachers and students who are incapable of following this very obvious and desirable method, however, notes and tables of the kind before us certainly have their use. Mr. Gwinnell's book is happily free from the gross absurdities and mistakes so common in many of the books prepared with the avowed aim of meeting the wants of those preparing for examination; and, for those who must have a crutch, we may admit that this is a very excellent one of its kind. We have noticed a few unfortunate errors, such as the statement that granitite contains pink orthoclase, and that graphic granite consists of "quartz and felspar arranged in lines like writing." The pretty geological map of Great Britain forming the frontispiece, too, which has been adopted from a work that appeared a good many years ago, exhibits nearly the whole of the Scottish Highlands as consisting of Lower Silurian rocks. On the whole, however, the book has the merit of being accurate and up to date, and the author is entitled to the praise of having very carefully selected, arranged, and verified the mass of miscellaneous information which he has brought together.

La Période Glaciare: Étudiée principalement en France et en Suisse. Par A. Falsan. (Paris: Felix Alcan, 1889.)

THIS volume, which is the most recent addition to the collection of the "International Scientific Series," published in the French language, contains a most admirable *résumé* of facts and opinions bearing upon the Glacial period, as illustrated in France and Switzerland. The author shows a very extensive acquaintance with the immense body of literature dealing with glacial questions, by English, American, German, and Scandinavian geologists; and very fairly and temperately discusses the bearings of the numerous theories that have been put forward upon the facts observed in France. As the references to original memoirs are very full and complete, the work cannot fail to be of much value to glacialists and geologists in general, while it admirably fulfils its main object, that of giving an accurate and popular account of the current knowledge and opinion of geologists upon glacial questions, especially adapted to the want of French readers.

Even when compelled to express his dissent from extreme views upon such questions as the recurrence of glacial periods in past geological times, the influence of glaciers in excavating lake basins, and the existence of man in Tertiary times, M. Falsan clearly states the grounds on which conclusions different from his own have been arrived at by other authors. In his presentation of the arguments for and against the various glacial theories, his moderation and his fairness are alike conspicuous.

The author of this book has taken an active part in the important work of preserving the most conspicuous of the fine boulders scattered over France; and numerous sketches of these boulders, with many interesting details concerning them, find a place in these pages. Two plates, a map showing the former extension of the French glaciers, and a series of sections illustrating the former dimensions of the Rhone Glacier, accompany the work; but the other engravings are wanting in the beauty and finish so often found in books published in France. The very full table of contents does not compensate for the total absence of an index to the book.

Physiological Diagrams. With an Index. By G. Davies. (Edinburgh and London: W. and A. K. Johnston, 1889.)

THESE diagrams are designed for use in schools, and to "supply the teacher with a means (by teaching the pupils to draw from them) of impressing the form and organs of the different parts of the body on the pupils' minds." There are nine in all (each 22 × 30) printed in black upon cardboard, with eyelet holes for hanging purposes. The parts are represented in hard outline, each being numbered, in accordance with a series of explanatory reproductions in miniature, which accompany the "text." The whole production is most feeble. It is only when the author relies upon standard works that his diagrams are tolerable, and his only really useful sheet (No. 1) is a copy. Seeing that much better wall diagrams have long been before the public, we are at a loss to see any *raison d'être* for these poor apologies. We are told that "the principal object of these drawings is to facilitate the teaching of physiology in schools." So much the worse for the schools! We cannot congratulate either author or publishers upon their venture. The day is past in which anything in outline will pass current for an atlas; and pictorial aids to the teaching of elementary physiology, to be of any service, must be produced by competent authorities.

Woolwich Mathematical Papers, 1880–88. Edited by E. J. Brooksmith, B.A., LL.M. (London: Macmillan and Co., 1889.)

IN this book we have a collection of the various papers in mathematics prepared during the last eight years to test the knowledge of candidates for admission into the Royal Military Academy. The subjects are: geometry, arithmetic, algebra, plane trigonometry, statics, and dynamics. The volume will prove most useful to those who intend entering for these examinations, and will also be of service to many teachers in our public and private schools. The answers to the examples in the various papers are collected together at the end.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

Head Growth in Students at the University of Cambridge.

UNDER the above heading there appeared in NATURE, vol. xxxviii. p. 14, an article in which certain very weighty conclusions are drawn from grounds which I hope to show are quite inadequate. These conclusions are as follow:—

(1) Although it is pretty well ascertained that in the masses of the population the brain ceases to grow after the age of 19, or even earlier, it is by no means so with University students.

(2) That men who obtain high honours have had considerably larger brains than others at the age of 19.

(3) That they have larger brains than others, but not to the same extent, at the age of 25; in fact, their predominance is by that time diminished to one-half of what it was.

(4) Consequently "high honour" men are presumably, as a class, both more precocious and more gifted throughout than others.

These conclusions were deduced from measurements taken in the following way. The maximum length, width, and height (above a specified plane) of the head are taken in inches and decimals of an inch. Since the quantities lie between 5 and 8

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